

Flight

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

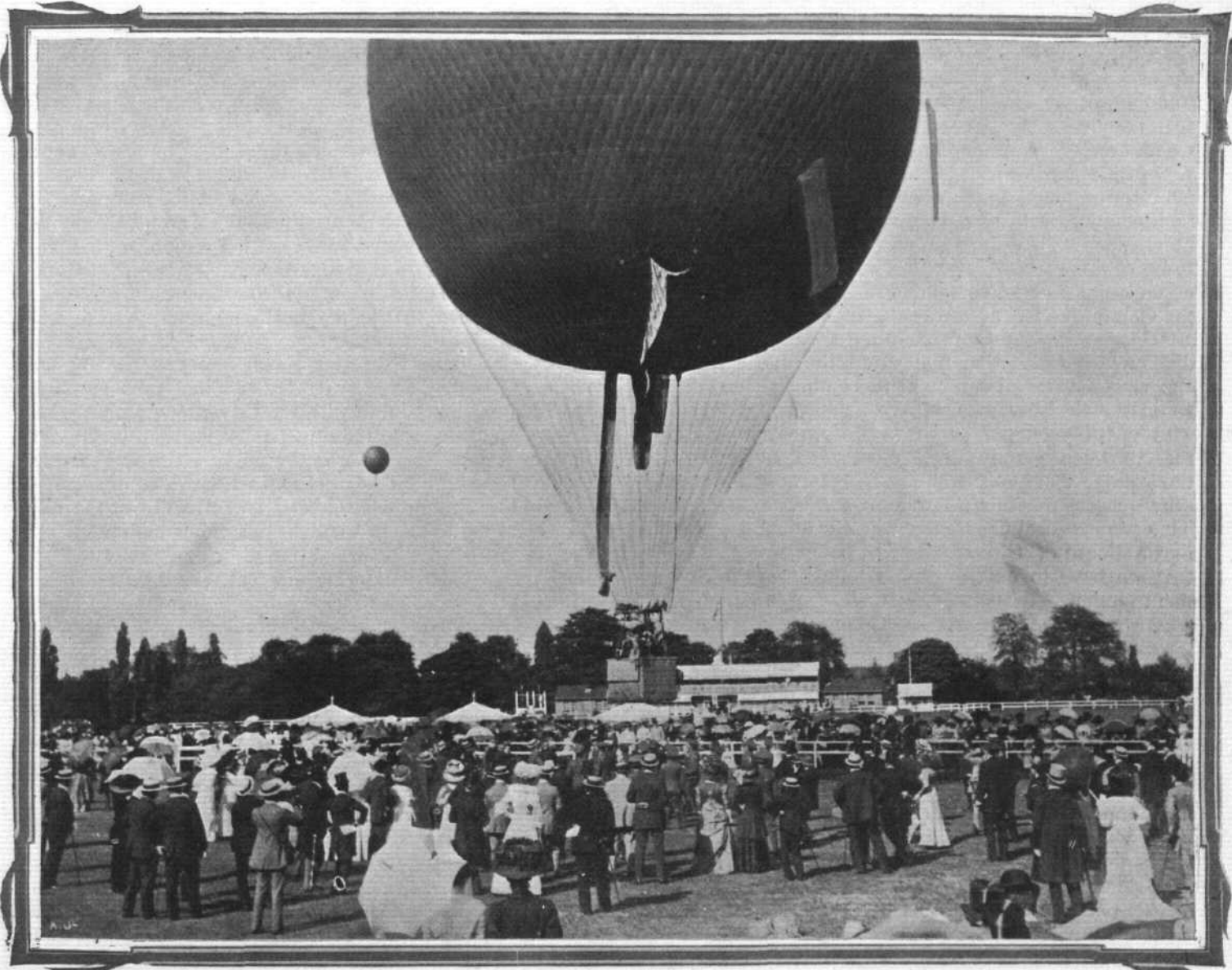
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AERO CLUB'S INTERNATIONAL BALLOON RACE AT HURLINGHAM.—General view of the starting ground on Saturday last, showing one of the competitors just getting away, with a previous starter far away trying for favourable air currents at varying heights.

THE ADVISORY COMMITTEE FOR AERONAUTICS.

THE Prime Minister's explanation in answer to Mr. Balfour's question as to the nature of the duties entrusted to the Scientific Advisory Committee on Aerial Navigation, may be considered enlightening, but cannot be deemed very satisfactory. Mr. Asquith said that it is no part of the general duty of the Government Committee either to construct or to invent. Its function is not to initiate but to consider what is initiated elsewhere, and is referred to it by the executive officers of the Navy and Army Construction Departments. The Government is of opinion that the problems that are likely to arise in this way are numerous. It will be the work of the Committee to advise on such problems, and to seek their solution by the application of both theoretical and experimental methods of research.

That is fairly explicit. Two views may be taken and are entertained concerning the matter. One is in effect that the Committee will be as certain a means of "blocking" progress as the War Office itself could be at the height of its red tape. The other is that the Committee of scientific men would be of immense and prompt practical service. We should like to be able to endorse the second-named view heartily, but it is not an easy one to adopt in the circumstances. We have to remember that practically without exception the members of the Committee are extremely busy men, who can only devote very little time to their meetings, which will certainly be none too frequent, as those who are aware of the rate of remuneration will conclude, for it will scarcely cover hotel expenses if quite a modest amount of meetings are to be held each year only. It is well that there should be no encouragement to anybody to strive for a place on the Committee for the mere sake of the emolument that attaches to it. At the same time there is a very vast difference between that policy and the one adopted of choosing a variety of more or less eminent men who are so extremely busy with other affairs than aeronautics, with possibly one or two exceptions, that it is certain that they can perform little more personal service than the average Board of Railway Directors, who for quite other reasons meet for a few hours at fairly long intervals. This Aeronautical Committee will certainly be very much like a Board of Directors, and it is in that connection that we have to express disappointment at the Government action. Without any disrespect to individual members of the Aeronautical Committee we may state plainly in regard to flight that there are at present no lack of opinions. If Government progress is to be advanced or retarded by the process of employing opinions from others than those actually engaged in the work of constructing and testing and experimenting with flying machines, the result is bound to be unsatisfactory from the national point of view. We do not want to add to opinions. Definite applicable knowledge is what is required alike by the Government and all interested in the study of mechanical aerial locomotion. And above all, we want to advance the practical side of the business and not the theoretical, which will always have quite as many, if not more, honorary devotees than are or can be needed. The nature of the Committee's functions, as outlined by Mr. Asquith, makes only one thing definitely certain, and that is that it will be more difficult than ever to get Government funds for spending on the building of flying machines of any sort. The Board will be

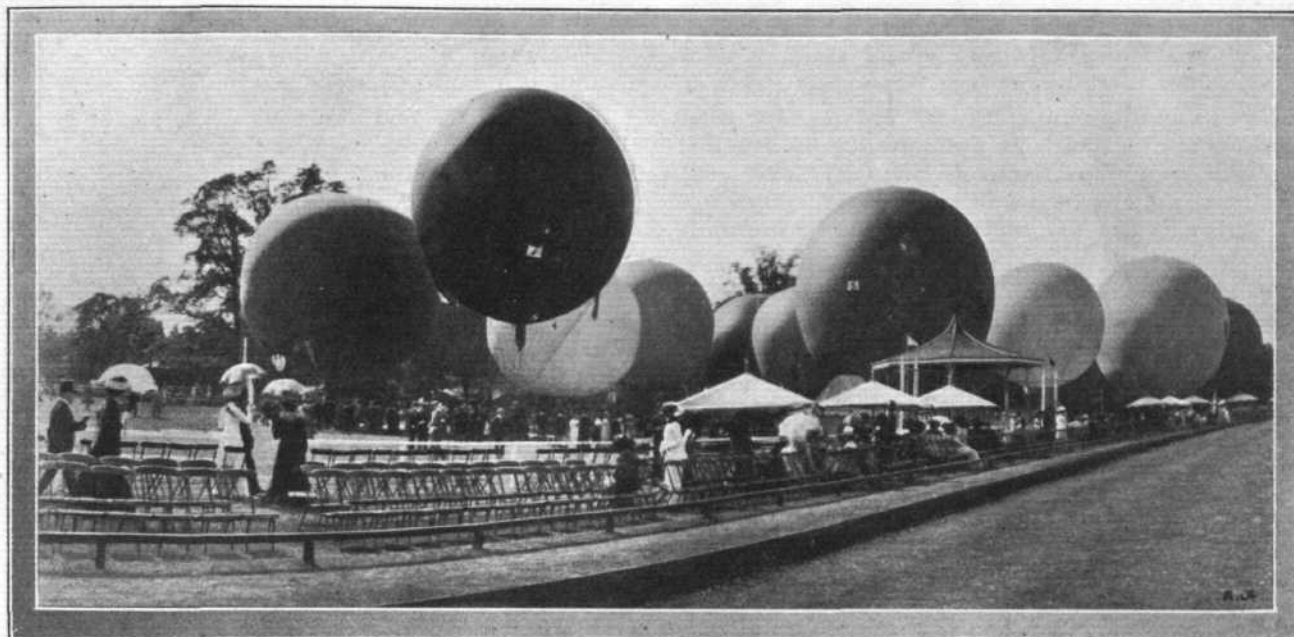
prone to display anxiety concerning its reputation if it is to be held responsible for recommending courses, and the inevitable result will be that one thing after another will be "crabbed" or delayed to a disheartening and dangerous extent "in order to err rather on the safe than on the risky side." Anybody who knows anything about these matters is well aware that it has always been difficult to get even a tithe of the money needed to devote to the practical side of the question. Precious time, infinite patience and brains, have to be squandered to get any single step forward. Indeed, one can scarcely get away from the impression that our most brilliant practical official experts are seized with a sort of paralysis of fear at the very idea of advocating anything difficult at this admittedly experimental stage of the science. There is, in fact, a mortal fear of being connected with anything that may not result completely satisfactorily, lest in an ungrateful age reputations which are rightly cherished may suffer, and services no longer be required in consequence.

In a word, the Government Advisory Committee of Aeronautics appeals to us at the moment as being a very doubtful blessing; so much so, indeed, that we are inclined to commiserate with those earnest and brilliant officers alike in the Navy and the Army who are devoting special attention to the subject. We cannot see any useful reason why any committee of distinguished theorists not necessarily concerned with aeronautical matters, and all of whom are unable to devote any appreciable time to the special needs of the nation in this connection, should be appointed to sit on the work of gentlemen who are devoting their whole time, energies, and enthusiasm to the practical pursuit of the subject. Any such Government system will check rather than help their labours. We want men who are working on nothing else but aeronautics for national uses to have anything whatever to do with the Government phases of this all-important question. It is idle to suppose that anything less than entire service can be of any practical use on the part of those men with whom, according to the Prime Minister's statement, will rest the all-important matter as to whether this scheme initiated by the Navy Construction Department, or that advocated by the Army Construction Department, shall be gone on with.

For our own part the only problems that seem to us likely to arise for reference to other authorities than those connected with the Admiralty or the War Office will be purely those of finance. It is a bad system to encumber enterprise by establishing "Boards of Opinion." The opinions of the practical men who are doing the work are worth a good deal more to the nation than those of a miscellaneous collection of scientists. The men who are doing the work know why they have failed or why they are succeeding, and can form as good if not better opinions as to the way to proceed or whether to desist than can any second body of men who have merely second-hand information by which to be guided. This science of aerial locomotion is not like an established branch of engineering wherein those who have been through the curriculum are in a position to give valuable opinion, though themselves not actually engaged in the particular work in hand. In aeronautics there are no past-masters.

INTERNATIONAL POINT-TO-POINT BALLOON RACE.

SOME BIRD'S-EYE VIEWS.—By H. MASSAC BUIST.

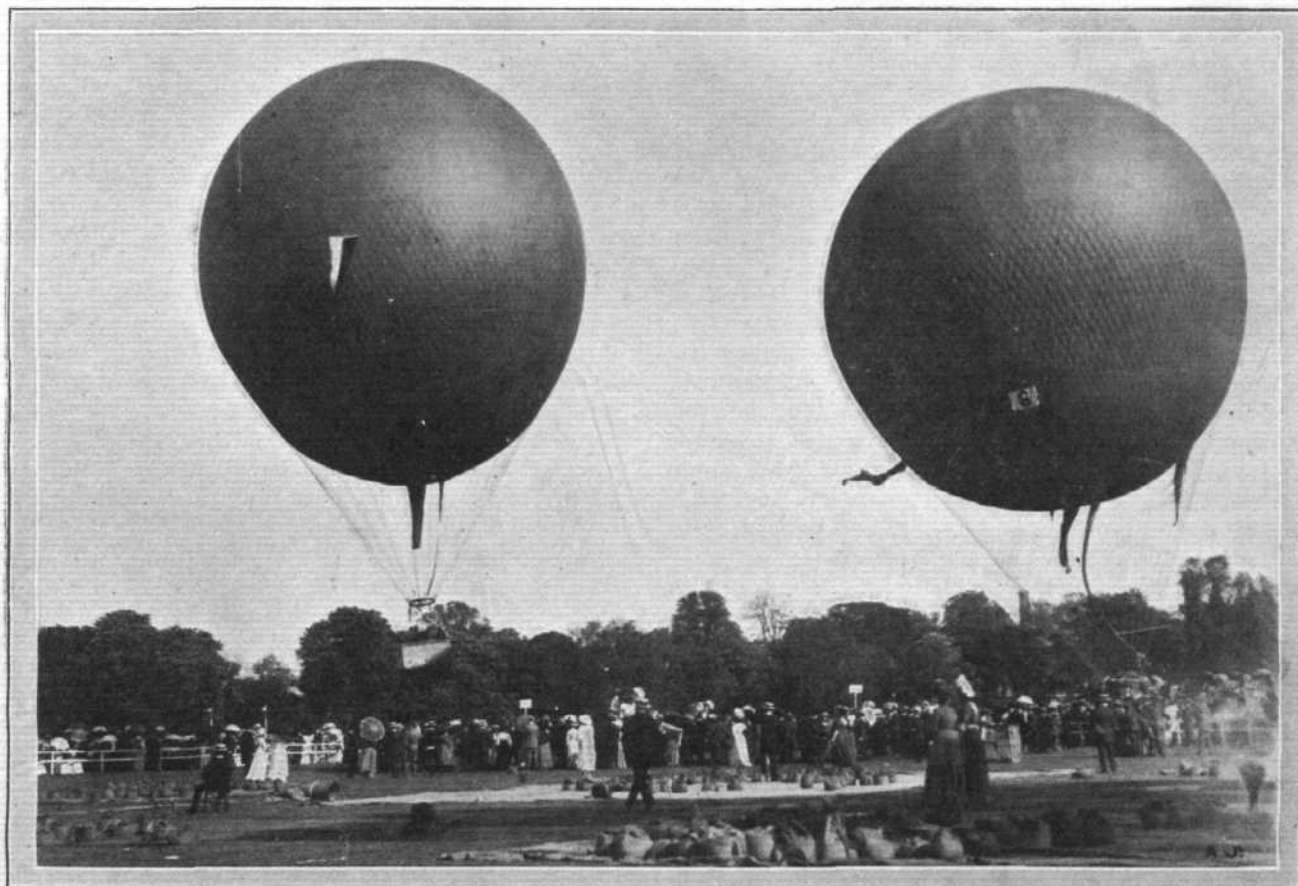


General view of the competing balloons in their "park" at Hurlingham on Saturday last prior to the start in the International Race.

IDEAL weather, the second largest attendance at Hurlingham on record, and a very good entry list favoured this year's International Balloon Point-to-point Race, organised by the Aero Club of the United Kingdom on Saturday. French entries were conspicuous by their

absence, but there were three German representatives, one Belgium, and ten competitors on behalf of the United Kingdom.

The preliminaries at Hurlingham evidently interested a great number of fashionable visitors, the presence of



"Vivienne," Mr. Griffith Brewer's balloon, just starting off in the International Race; and on the right "Corona," owned by Mr. F. K. McClean, coming up to the starting place.

sixty men from the balloon section at Aldershot lending just that suspicion of a martial air that imparted to the effect a sense of official orderliness. It was not necessary to start the balloons from the polo ground this year, the green beside sufficing for the purpose. The work of inflation was without incident, for there had been no overnight rain to drench the ground and make the balloons heavy, as on a like occasion last year. Those competitors whose envelopes were filled first deemed themselves lucky because they got the lighter gas, whereas some of the later balloons found that the margin of lifting power was over-narrow when carrying the complement of passengers and ballast. Some authorities hold that with such a supply as is available at Hurlingham, when you get your gas matters little, the last filled being no heavier than the first, and that the real fault is with the present internationally accepted system of handicapping.

Be these things as may be, the fact remains that perhaps the second balloon to be filled, the "Ziegler," found that, owing to leakiness, the lifting margin was so narrow that Dr. F. Linke had three bags of ballast sealed and, presenting his last passenger to an official appointed by the Aero Club to check the number of persons carried, asked whether he might take the ballast in place of one of his passengers and still be eligible for the competition, provided his sealed ballast was attested to on alighting. He states that he received permission to do so, having made it quite plain that if it were refused him he would chance being overweighted and carry the passenger. Again, still in connection with this weight problem, lack of ballast caused M. H. Demoor to have trouble with the "Belgica" at West Ham at a time when she was making a dead true line for the day's objective, which had been fixed at a point approximately thirty miles east-north-east from Hurlingham in a rye-field between Tye Common and Billericay. The "Belgica," however, was piloted uncommonly adroitly, a paltry matter of three tiles off a roof being the only tale to tell, and eventually she came down at Galley Wood, and was placed fifth. A German balloon, Dr. Hutz's "Moenus," that had drawn the number thirteen, also came down about half-an-hour after starting, and in much the same neighbourhood. She was making a good line over Bow, but travelling very low over the Cygnet Brewery and Cook's Soap Works. The spot chosen for alighting was a piece of waste ground adjoining the canal at Warton Road. The space available being too cramped, the envelope swayed up against the side of a house, some of the gas escaping from the pulling of the rip drifting through an open window. A man named Belcher calmed an alarmed mother and child who were the only occupants of the room, and afterwards helped to get the envelope off the roof, having the ill-luck to scratch his hand rather nastily. "Stratford is not the best part of England," observed one of the competitors. "The people there are rather common, and keep asking for money."

So much for premature descents. Mr. Rolls was able to take about the widest margin of ballast of any of the competitors, being over-greedy in that matter, so that the "Mercury" looked like coming down again before she had risen a dozen feet clear of the ground. A hasty jettisoning of a bag of ballast from a height of less than nine feet on to the polo ground caused momentary alarm among about half-a-dozen fashionably-dressed people seated within a few feet, while some of the sand blew on to their clothes, which immediately occasioned the issuing of strict instructions to all subsequent starters to make sure that their balloons would be weighted so as to

lift freely. On another occasion it will be desirable to clear a temporary space in the seats if there shall chance to be any so near to the actual starting point as were some of those on Saturday. It is rightly held, as well by the Hurlingham Club as by the Aero Club, that it is not desirable to run the risk of scattering particles of sand on fashionably dressed folk.

I followed Mr. Rolls immediately, being one of Mr. Griffith Brewer's passengers on the "Vivienne," of 75,000 cubic feet capacity. She is the biggest balloon of the afternoon, and the one which M. Santos Dumont had for the first Gordon-Bennett Balloon Race. At half-past two o'clock it had looked as though the struggle would be chiefly to keep away from the mouth of the Thames; but half the balloons had not been sent off when it became clear that the difficulty would be to prevent drifting too much north-west of the ideal imaginary line, which would have meant crossing the Thames about Lambeth and passing over Wapping, Limehouse, Plaistow, East Ham, Barking, Rush Green, Wingle Tye, Little Warley and Ingrave, and so to the white cross laid down in the marshy rye-field, where, in striking contrast to the fashionably dressed throng at Hurlingham, there were assembled a crowd of unsophisticated villagers, greatly curious, delighted at the prospect of balloons descending in their midst, and discussing with bated breath this point and that concerning chances, and what it must be like to be up in a balloon, what time sundry enthusiastic aeronauts—including Mr. J. T. C. Moore-Brabazon, in the act of running up a £3 taxi-cab fare—some Germans and a batch of Territorials discussed the situation among themselves with a trifle more technical understanding.

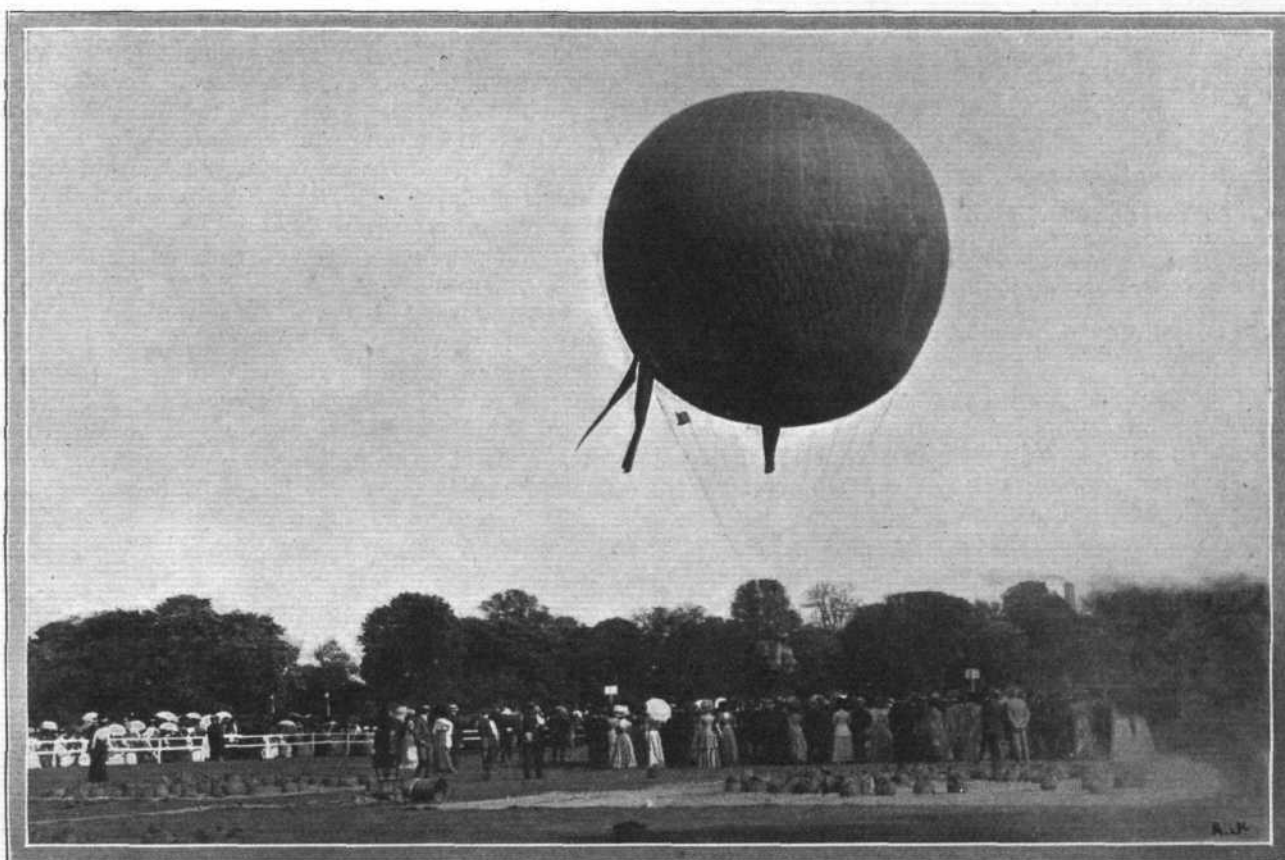
The only possibilities of excitement in a short distance competition of this sort are in the direction of having to make involuntary descents for lack of ballast, or, when finding a balloon very close on the objective, in dropping quickly and bumping badly in consequence, in order to drift away from the mark as short a distance as possible. Had the wind continued more easterly there might have been some fun in the matter of landing between the wriggings of the winding Thames towards its mouth.

Our log shows us to have been fortunate in keeping low over London in a twelve to thirteen mile an hour breeze that was blowing a point more to the north than we desired when ascending at ten minutes to four. Thanks to Mr. Brewer's insisting on the envelope being immediately over the basket in the course of its swayings during the trying of the lift of the balloon, we were able to carry easily two more bags of ballast than they were minded to have let us. Consequently, we were at no time troubled for spare sand throughout the journey, having three full bags when we alighted; also the carrying of the two additional bags doubtless accounted in large measure for our being able to drift three-quarters of the way over London at a height of not more than 600 feet. We were a little north of our course, with King's Road below us, then Fulham Road, along which our shadow followed a motor bus steadily for quite a while. At this low altitude the view was nevertheless over a vast stretch of country, all which appeared flat as a billiard table. For example, the Crystal Palace seemed to lie as low as Ludgate Circus, while Hampstead Heath seemed on a level with the Mall. We are wont of speak of London as a straggling sort of city, nor does one realise how amazingly regular and neat any town is until you float over it in a balloon. We needed to be up another couple of thousand or three thousand feet, as I was on an equally

fine day last summer, to see the city and its suburbs dwarfed to the proportions of a hamlet. At the height of six hundred feet on Saturday last by far the longest thoroughfare—that from Cheapside along Holborn, Oxford Street and through Kensington to Shepherd's Bush, which certainly ought to be given but one single name throughout its entire length—appeared to be scarcely more than a couple of hundred yards long, yet we could see with absolute distinctness every vehicle in the road and every person walking its pavements, a motor omnibus being about the bigness of an ordinary house fly, while men seemed about the size of ants. Staines Waterworks to the west seemed a refulgent steel shield, the Serpentine presented somewhat the outline of a Parseval dirigible, the Mall showed a fine prospect, the trout pond in Buckingham Palace looked rather stagnant, and the noises of London town were mingled into a mere monotonous and not unmusical hum.

of railway lines focussing on the east of London, the fine expanse of the British Museum, the straight street of Holborn, Oxford Street, and the continuous thoroughfares, the contrasting curlings of the river, the fresh decorations of the Shepherd's Bush Exhibition, in the Stadium of which our fellow-passenger, Sir Claude Champion de Crespigny, was supposed to be judging the Marathon Race, and the numerous green playing-fields where masses of black ants appeared to be watching a handful of white ones in each, all tended to convey the notion that London had become but a corner of Lilliput, the process of dwarfing having been a great gain in that everything, including the slum districts, showed as a pattern of cleanliness.

There being a good field and a variety of opinions among the pilots as to the best heights to float at to secure favourable breezes, now there began to be plenty of changing of positions, Mr. John Dunville's "Banshee,"



Capt. Thewald's "Ziegler," representing Germany in the Aero Club's International Balloon Race, just despatched. This balloon landed nearest to the specified destination at Tye Common, in Essex.

Mr. Frank McLean, following us in the "Corona," rose to a goodly height right away. The "Mercury" kept very low and on a true line. The expansion of gas caused us to rise about twenty minutes after we had been sent off, a rather curious illusion being that, to our view, Mr. Rolls appeared to be scraping the dome of St. Paul's yet he was nearer our own altitude at the level of the Cathedral.

One of the chief points about ballooning is that unless a lot of craft are up in the same neighbourhood about the same time, it is impossible to appreciate whether you are rising or falling. Even when there are others around you it is hard to tell whether it is themselves that are rising or yourself that is falling. London looked extraordinarily tiny and tidy beneath us, for the same glance, without shifting of position, enabled us to view the marshy lands beyond Barking, the strange threadwork

which was very high by comparison with the rest—albeit probably not more than between six and seven thousand feet—appearing to be in the best position about quarter-past four, when we were still rising in quest of another current, having come approximately two miles north of the ideal imaginary line. At half-past four we were at three thousand feet only, however, and our position was not so bad as to make it worth while to let out gas. Rather was it better to continue rising on the off-chance of encountering a better current. The "Tillie" now began to come up close to us, rising at a greater rate than ourselves. At four-thirty we had been at three thousand feet, five minutes later we were at four thousand feet, which possibility always strikes me as being a rate of rising that must be quite beyond the capacity of any power-sustained machine for many years to come. With a balloon the thing is so utterly effortless that the aneroid



AERO CLUB'S INTERNATIONAL BALLOON RACE.
—Amongst the passengers in the balloons was H.S.H. Princess Blucher, seen in our photograph on the left; and in the same craft—Mr. C. F. Pollock's "Valkyrie"—was the Hon. Mrs. Assheton Harbord (in the centre). Mr. Pollock is seated on the edge of the car on the right.

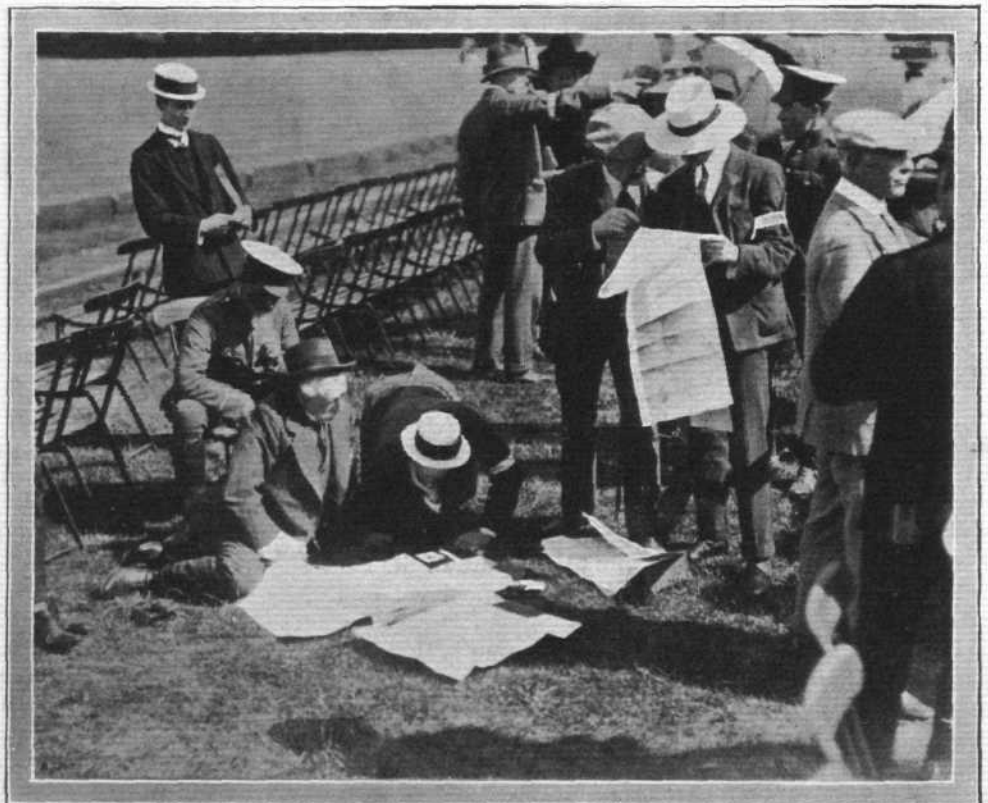
barometer alone tells you what you are doing, while momentary pressure on the indiarubber tube of the statoscope shows more obviously than any other instrument what you are actually doing at any given moment. We were using a tell-tale, in the guise of a pocket handkerchief tied to the lower end of about one hundred feet of string, by way of finding out when the balloon was in a different current from one almost immediately beneath it.

The wind kept coming in faint puffs and was very shifty, every gust seeming to change our direction and cause a shifting of chances. The "Venus" and the "Tillie" were now far to the north, but the majority of our rivals appeared to be making a better course than ourselves, at a quarter to five o'clock, because a more easterly one.

It was now deliciously cool, and an observation of our position showed that we had travelled at about thirteen miles an hour since getting off. At half-past four o'clock the last three balloons could still be seen hard by Hurlingham; but the haze and smoke over London soon shut them out of view, so that presently only the quartette that had preceded us, and the half-dozen immediately following,

came within our purview. In quest of a current that would carry us slightly more towards the south, Mr. Brewer now allowed the balloon to rise steadily, so that we began to be grateful for the cooler air encountered higher up, because at lower altitudes the sun had proven uncommonly hot. Because balloons travel with the moving air in a seemingly dead calm, one rarely has any appreciable sensation of a breeze when aboard them, the only and rare occasions being at the moments when change of direction is given to the balloon by the actual encountering of a contrary current.

Some get thirsty when ballooning, others are not troubled that way, as instance Sir Claude de Crespigny, Captain Butterworth, and Mr. Harry Delacombe. Mr. Brewer and myself, however, having mixed a sufficient proportion of coal gas with rarified air, became somewhat curious concerning the contents of a bottle of plain water which was the only liquid we had in the car. At the moment of uncorking it, it gave forth a little fizzing sound as though it were aerated, the explanation being found in the difference of atmospheric pressure within and without the bottle. We rose to six thousand one hundred feet before achieving the desired change of direction into a more easterly course. That was at twelve minutes to five o'clock, when we had done the first thirteen miles in one hour. At five o'clock we were at six thousand seven hundred feet over Wanstead Park, and tending overmuch towards the north again, but it was not worth while losing gas by opening the valve to bring us down. Round about us there was plenty of changing of places, some of the balloons managing to perform an aerial, and therefore feeble, imitation of a grand chain movement in a dance. This meant that now and again we were passing under a "deadly rival" drifting across our path, or over one. Therefore it became needful to pay out the three hundred

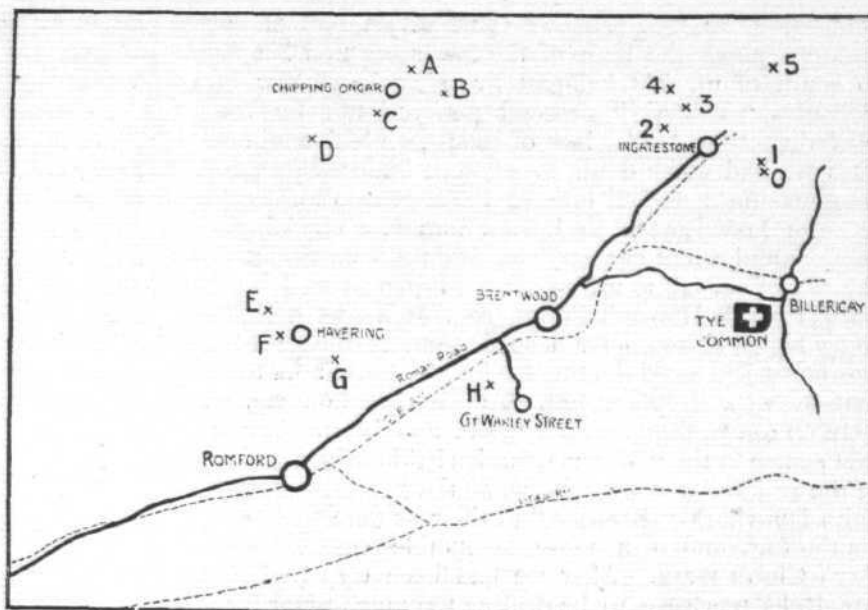


Stewards of the Aero Club deciding, at Hurlingham, the landing point for the competing balloons in the International Balloon Race on Saturday last, when Tye Common was selected.

feet of trail rope, because you cannot see an object overhead when ballooning, consequently it is desirable to have about that margin of warning before bumping the bottom of somebody's basket with the mandarin's cap-like valve apparatus at the top of the balloon.

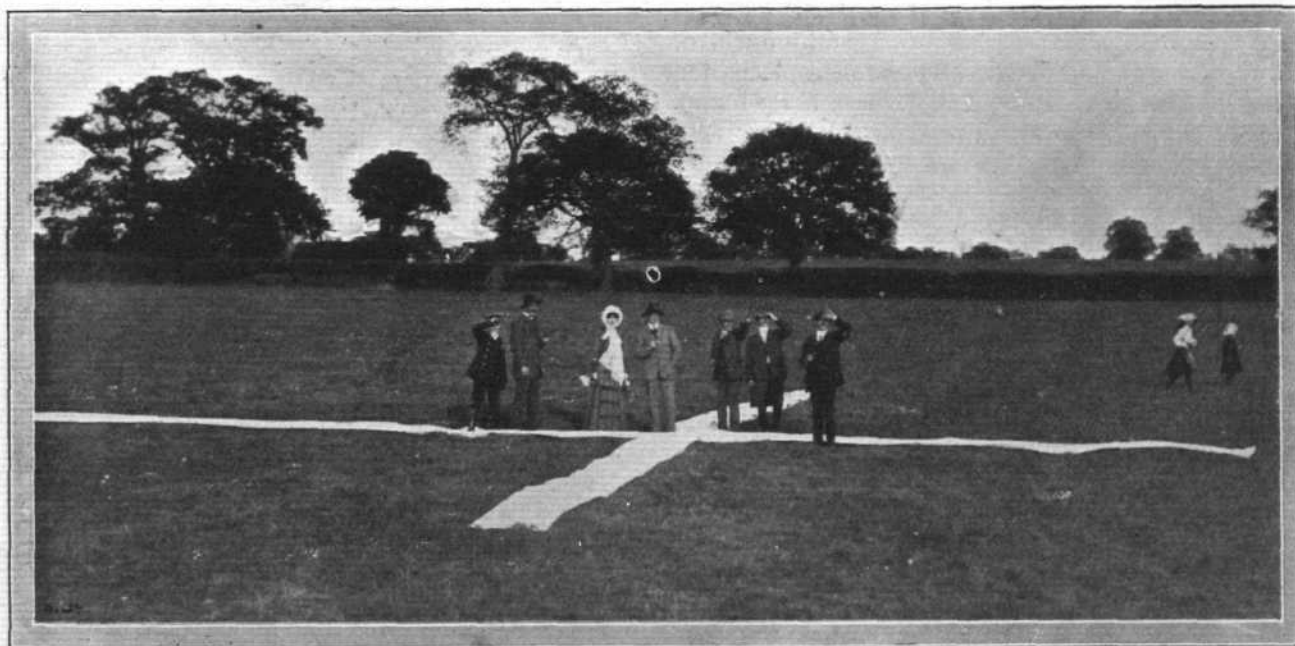
You must not imagine this sort of competition to be an idler's pastime. There were five of us aboard, and everyone was busy throughout, including Sir Claude, as the self-appointed honorary look-out man, than whom none could have been better chosen for the purpose in that hereabout was all his own country, every hedge and ditch of which was familiar to him through hunting. In brief, what he did not know, had he chosen to communicate it, concerning such-and-such a hall that had been in the hands of three generations of drunkards; such-and-such a house, where is the finest cellar of port to be found in England; such-and-such a lodge, the heir to which married so many tens of thousands a year and got through the lot in as many months; such-and-such another place, where a disastrous fire had reduced a palatial residence to Goldsmith's "four naked walls that stared upon each other," and so forth, was not knowledge. Seemingly, our genial fellow-passenger and impromptu cicerone had advised all his friends for miles around to be on the look-out for us so that we should be sure of a hearty welcome anywhere within a wide range of the winning post, not omitting Champion Lodge.

Mr. C. F. Pollock seemed to become envious of our position about 5.10 p.m., to judge from the rate at which he began rising, so that we were soon within haling distance and learnt that by now he was mighty short of ballast. After some chaff he let down his trail rope. About this time London was lost to our view in the



AERO CLUB'S INTERNATIONAL BALLOON RACE.—Sketch map, showing the spots where the various competitors landed approximately in their attempt to reach Tye Common, marked with a cross. The numbers represent the place of landing of the balloons as follows, the first five being in order of distance from the winning mark—Ziegler being disqualified—the rest, A, B, C, &c., not representing any official order of distance:—O, Ziegler; 1, Banshee; 2, Satellite; 3, Mercury; 4, Vivienne; 5, Belgica; A, Kismet; B, Venus, C, Moenus; D, Enchantress; E, Valkyrie; F, Corona; G, Tillie; H, La Mascotte.

heat mist that hung rather low over it. We were about six thousand feet with at least six balloons in a better position than ourselves, being more due east than us, but seemingly throughout the afternoon no competitor succeeded in getting south of the Great Eastern Railway mainline through Romford and Brentwood. About a quarter-past five, we began to drop from seven thousand one hundred feet in the endeavour to encounter a breeze that would take us a little more southerly, the gas contracting owing to the cooler atmosphere serving our purpose admirably in this



Near Tye Common, showing the White Cross laid out for the guidance of the competitors in the Aero Club's International Balloon Race last Saturday.—Note the official watchers who are just able to discern some of the competitors coming into sight in the distance.

connection, so that soon we came within hail of dog-barkings, albeit the hum of the towns was now left well to south of us. At half-past five o'clock we saw Mr. Pollock's "Valkyrie" descend perforce not far from Haveringatte-Bower for lack of ballast, while five minutes later we had come down to eighteen hundred feet, and were making a perfect line for the afternoon's objective as from Low Leyton to Leyton Station, a crackling in the ears and a hint of temporary deafness communicating the fact of our fall to us. Then we began to trail northwards towards Hainault Forest, so that it was desirable to try higher altitudes for a spell, some of the sand that was being jettisoned floating back into the car in token that we were dropping fast. At five-fifty, however, we were up to five thousand feet again, and bearing second best course to the "Mercury," which held the best position of the balloons ahead of us, while the "Tillie" and Mr. John Dunville's "Banshee" in the rear were well to the south of us, and in a more favourable course for the Aero Club's mark. After we had been up two hours, Mr. Rolls was seen to be drifting too much towards the river, so he threw out ballast, and rose to approximately eight thousand feet. At five minutes past six we reached our maximum altitude of the day, eight thousand two hundred feet, or approximately one and a half miles sheer.

Now we let out our first gas, because it was time to make a descent if we were to reach the ground without a very bad bumping before passing beyond the region of the rye-field. Three times Mr. Brewer opened the valve; thrice we heard the rush of escaping gas overhead, and thrice it was followed by the satisfactory snapping sound of the closure of the valve. But we had to go through many contrary currents on the descent, so that in the result we got rather badly driven to the north of our objective. The clearness of the objects below when at our maximum height made it incredible to believe that we were removed from the earth about one mile and a half, from which distance some stagnant ponds below looked like nothing so much as custard in glasses. True, we had drifted south of Navestock, but we thought ourselves to have gone so far north that there was no object in forcing the descent, therefore we drifted onwards towards a suitable ground, landing on the Hon. Robert Cecil's estate, Writtle Park, after a friendly caress with a trio of trees, with which we had been doing some steeplechasing in the course of the rebound after the first bump. Nothing could have been more convenient than the spot of our descent, which separated us, by a field's distance only, from hosts who gave us a hearty welcome. Had we guessed that our rivals were mostly in even worse case than ourselves, however, we would have come down a couple of miles sooner, and so been nearer the afternoon's objective as the crow flies. The competition was a delightful one for all who took part in it.

In conclusion, Mr. Harry Delacombe and myself wish to express our hearty appreciation of Mr. Frank K. McClean's generous forethought in instructing his motor-man, in the event of his failing to trace his master, to drive back any of the balloonists he could come across. It chanced that master and man did not meet, also that we were the happy gainers in convenience by the occurrence. Many thanks, Mr. McClean.

The Competitors Entertained by Hon. C. S. Rolls.

ON Sunday the Hon. C. S. Rolls gave a lunch to the competitors and passengers in the balloon race, in honour of the foreign visitors. There were about thirty people present, including the representatives of Germany and

Belgium, nearly all the other competitors and their passengers, the Earl and Countess of Clonmel, Viscount and Viscountess Massereene, and Mr. Roger Wallace, K.C.

In proposing the health of the foreign visitors, Mr. Rolls alluded to the pleasant recollections many of those present had of visits to Berlin and Brussels for aero contests, and the Aero Club were pleased to welcome the foreign competitors here. He complimented Dr. Thewald on his excellent performance in landing nearest the finishing point. In reply, Dr. Thewald expressed his gratitude for the cordial manner in which he and his fellow visitors had been received in Great Britain.

The following are the official placings, passengers in the respective balloons, and points of descent:—

Balloon.	Passengers.	Place of Descent.
1. Banshee (England), 2,200 cubic metres (John Dunville)	Mrs. John Dunville Prof. A. K. Huntington E. de C. Oakeley D. Bingham	Ray Farm, Ingatestone
2. Satellite (England), 778 cubic metres (Major Sir A. Bannerman, Bart.)	Major G. J. Farmar	Fryerning, Ingatestone
3. Mercury (England), 900 cubic metres (Hon. C. S. Rolls)	Capt. W. A. de C. King	Handley Green Farm, Margaretting
4. Vivienne (England), 2,000 cubic metres (G. Brewer)	Sir Claude Champion de Crespigny, Bart. H. Delacombe H. Massac Buist Capt. Butterworth	Writtle Park
5. Belgica (Belgium), 1,600 cubic metres (H. Demoor)	Dr. Archibald Melcolm Carter Mrs. Malcolm Carter	Galley Wood

The following Competitors have not been Placed.

Corona (England), 1,415 cubic metres (Frank K. McClean)	Dr. W. J. S. Lockyer Miss McClean Miss Stevenson	Havering
Valkyrie (England), 1,698 cubic metres (C. F. Pollock)	Hon. Mrs. Assheton Harbord H.S.H. Princess Blucher H. Adderley B. H. Barrington Kennett	Havering
Tillie (Germany), 600 cubic metres (Direktor Neumann)	No passengers	Havering
Venus (England), 1,190 cubic metres (Capt. A. H. W. Grubb, D.S.O., R.E.)	Capt. J. W. Skipwith, R.E. J. H. Deakin	Norton Heath
Kismet (England), 1,273 cubic metres (Philip Gardner)	Fred Chaplin Capt. V. C. de Crespigny Mrs. Baillie	Wiggingale
Enchantress (England), 1,415 cubic metres (E. C. Bucknall)	Martin Dale Miss H. Holland d'Aula Donnithorpe	Berwick, near Ongar
Moenus (Germany), 900 cubic metres (Dr. Hütz)	Dr. Neiderhofheim	Stratford

The following were disqualified owing to their carrying an insufficient number of passengers:—

*Ziegler (Germany), 1,400 cubic metres (Capt. Thewald)	Paul Merzbach G. H. Hermann	Ingatestone
La Mascotte (England), 1,415 cubic metres (V. Ker-Seymer)	Mrs. J. T. C. Moore-Brabazon J. H. M. Greenly	Noak Hill, near Brentwood

* This balloon landed nearest to the stipulated destination.

The new Club balloon "Icarus" followed the race in charge of Major Baden-Powell, accompanied by A. C. Hunter, J. Wedg Wood, and Lieut. Gerard Hetherington, and descended at Chipping Ongar.

Mr. Philip Paddon kindly took charge of the arrangements at Tye Common, Billericay, and was successful in reaching the spot selected in good time to enable him to place the white cross.

AERO CLUB OF THE UNITED KINGDOM.

OFFICIAL NOTICES TO MEMBERS.

Fixtures for 1909.

June 12	... "Point-to-Point" Balloon Race, Hurlingham Club (Cup presented by the Hon. Mrs. Assheton Harbord).
July 10	... "Hare and Hounds" Balloon Race, Hurlingham Club (Cup presented by the Hon. C. S. Rolls).
July 17	... Balloon Race, Hurlingham Club (Challenge Cup presented by Mr. Frank H. Butler).
August 28	... Gordon-Bennett Aviation Cup, Rheims.
October 10	... Gordon-Bennett Balloon Race, Zurich.

Vice-President of the Aero Club.

Field-Marshal Earl Roberts, V.C., K.G., K.P., G.C.B., has kindly consented to be a Vice-President of the Aero Club.

Committee Meeting.

A meeting of the Committee was held on Tuesday, the 25th inst., at 166, Piccadilly, W., when there were present: Mr. Roger W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Maj. C. de W. Crookshank, R.E., Mr. Martin Dale, Mr. John Dunville, The Earl of Hardwicke, Mr. V. Ker-Seymer, Mr. F. K. McClean, Mr. J. T. C. Moore-Brabazon, Mr. C. F. Pollock, Hon. C. S. Rolls, Mr. Stanley Spooner, H. E. Perrin (Secretary).

New Members.—The following new Members were elected:—

Charles C. Allom.	Major Arthur Hill.
W. Worby Beaumont.	Col. Henry C. L. Holden, R.A.,
Clive Burn.	F.R.S.
George L. O. Davidson.	S. H. Perrin.
D. George.	William Thornton.

International Balloon Race.

The International Balloon Race from Hurlingham Club on Saturday, 22nd inst., was attended by a large number of members.

Fourteen balloons took part, including three from Germany and one from Belgium.

The official result is as follows:—

1. Banshee (John Dunville, England).
2. Satellite (Major Sir A. Bannerman, Bart., England).
3. Mercury (Hon. C. S. Rolls, England).
4. Vivienne (G. Brewer, England).
5. Belgica (H. Demoor, Belgium).

Under the International Federation rules the Committee of the Aero Club have been compelled to uphold the protest against the "Ziegler" (Germany), which landed nearest to the stipulated destination.

The Hon. C. S. Rolls entertained the English and foreign competitors to lunch on Sunday, the 23rd inst., at the Hurlingham Club.

Hurlingham Club and the Aero Club.

Members of the Aero Club may be elected Associate Members of the Hurlingham Club on very favourable terms. Full particulars can be obtained on application to the Secretary of the Aero Club.

Shellbeach Flying Ground.

The two sheds erected by the Aero Club at Shellbeach are now completed, and are housing the flying machines belonging to members of the Club.

Members wishing to erect their own sheds at Shellbeach are requested to apply to the Secretary, who will supply all information.

The Committee of the Aero Club have decided to erect a Club bungalow, which will be placed in

a suitable position to enable members to witness flights.

The following reduced fares have been arranged with the railway company for members visiting Shellbeach:—

1st Class Return	2nd Class Return	3rd Class Return
8s.	6s. 6d.	5s.

These tickets will be available for one month from date of issue.

Members desiring to avail themselves of these reduced fares are required to produce vouchers at the booking offices. Vouchers can be obtained from the Secretary of the Aero Club.

Trains leave Victoria, Holborn, or St. Paul's.

For the convenience of members, the best train is the 9.45 a.m. from Victoria, arriving at Queenborough 10.55. At Queenborough change to the Sheppey Light Railway for Leysdown (Shellbeach), which is $\frac{3}{4}$ -mile from the flying ground.

The Club House, Muscle Manor, is now open to members, and refreshments can be obtained there. Until the ground is being regularly used it is, however, advisable to send a telegram so that arrangements may be made. Telegrams should be addressed "Aero Club, Leysdown, Eastchurch."

The Committee have now under consideration the question of sleeping accommodation at Muscle Manor, and full particulars will be announced shortly.

Membership of the Aero Club.

The membership of the Aero Club is being added to each week and upwards of two hundred new members have been elected during the present year. In view of the very important developments which are so rapidly taking place, the Committee hope that all members will use their best influence in extending the membership of the Club, thereby enabling the Committee still further to emphasise and justify the premier position in the sport and development of the art of aeronautics which has been assigned to the Aero Club under arrangement with the other recognised aeronautical bodies of Great Britain. The advantages of membership are many and should at once appeal to those who are in any way interested in the subject.

Balloon Race at Hurlingham.

In consequence of the International Polo Match, the Balloon Race fixed for June 23rd has been altered to *Saturday, June 12th*, at Hurlingham Club. The race will be a Point-to-Point Race, and the winner will be the competitor who lands nearest to a point which he will select before starting. The first prize will be a Cup, presented by the Hon. Mrs. Assheton Harbord.

HAROLD E. PERRIN, Secretary.

The Aero Club of the United Kingdom,
166, Piccadilly, W.



Territorial Balloonists.

REPLYING to a question by Sir C. Dilke in the House of Commons, on Wednesday last, Mr. Haldane said that in view of the improvements with dirigible balloons it was not desirable to issue balloon equipment to Territorial balloon units, but small stores for instruction were being issued. The Territorials would train at Aldershot with the Regular units.

FLAPPING WING MACHINES.

JUST AS OUR ARTICLE IN "FLIGHT" OF FEBRUARY 6TH EXPLAINED THE ELEMENTARY PRINCIPLE OF AN AEROPLANE, SO DOES THE PRESENT ARTICLE DEAL IN SIMPLE TERMS WITH A CERTAIN ASPECT OF FLAPPING FLIGHT.

IN our first article on "How Men Fly" we explained how the air could be made to support a flying machine by pushing thin surfaces through it at a high speed. Many thinkers have wondered, however, why it is that man does not first try to fly, like the bird, by flapping wings. It would seem, according to their arguments, the proper thing to do, and in the very remote days it was, according to the records which have been left of those times, unquestionably a governing idea among the majority of practical workers. That those very early pioneers of flight failed with their crude appliances is no cause for wonder when modern inventors are still unsuccessful; and there are, even now, a few undaunted believers in the field who profess to see the ultimate solution of practical flight in the flapping-wing device. Progress, however, has gone, as usual, along the line of least resistance in evolving the aeroplane instead of the "flapper," and consequently it was only proper to commence such a series of articles as this by dealing first with the fundamental principles of what is, after all, the only practical type of machine at the present day.

Flat-winged "Flappers."

The most elementary idea of the beating wings seems to be that of using plain flat surfaces striking downwards upon the air, as is done, for instance, in the Collomb orthopter. This point of view presumably supposes that the most important result to be achieved by wing movement is that of ascending vertically to a higher level in the air. It ignores propulsion as a possible direct result of flapping, and apparently views artificial flight as being primarily composed of two separate and distinct evolutions, following one another in continual sequence. The machine first rises vertically, and then travels obliquely by gliding, until another rise is necessary—the process may be likened to sliding down the balusters after ascending in the lift.

Any machine having been lifted to a position above the earth's surface, has a latent or potential energy due to its weight and height (foot-pounds potential = weight \times height) which, assuming it be suitably built and manipulated, it can utilise for propulsion by gliding at a very gradual angle, so that in the course of its descent it travels a long way from its starting-point. Once in motion, such a machine would also, owing to its momentum, travel obliquely upwards during the subsequent lifting strokes of its wings, and thus the resultant motion would probably be more switchback-like than zigzag, as was implied by the analogy suggested above. It is most unlikely, however, that such a machine would be efficient either as a glider or as an orthopter.

Instead of dismissing the simple flat wing type of machine, however, we purpose in this article to refer to one or two other fundamental principles associated with its action, as the problem is one in which we have found many readers to be interested. If a simple orthopter is to lift itself straight up into the air by the downward beats of its wings, provision must obviously be made whereby the upward wing flaps are rendered null and void. A plain flat surface flapping up and down would react equally in both directions on the air, so that at the best the machine could but perform a series of hops; to maintain the motion of ascent it is necessary to

"feather" on the upward stroke, as is done in the idle stroke when sculling. Some form of valve would, for convenience, be employed to give this feathering effect by allowing the air to pass freely through the wings on the up stroke while the full wing surface remains effective on the down stroke.

Wings with Valves.

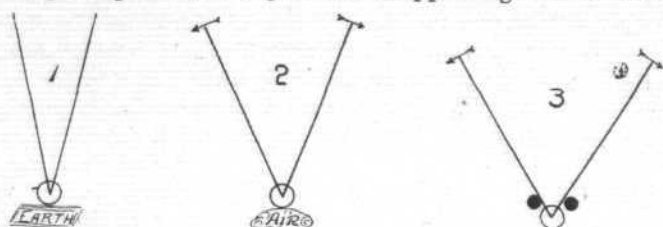
The fundamental question as to whether it is theoretically possible to make a machine with valvular wings, which could continue to raise itself vertically in the air by beating them, is one which, so far as the mere mathematical solution is concerned, may be answered in the affirmative, but man himself has not yet shown that his constructive arts are equal to the practical realisation of this fact. It is open to anyone to convince themselves, by any such simple experiment as flapping a sheet of cardboard, that beating the air is a means of creating a force, and the laws relating to this "wind resistance"—dealt with in the first article of this series—are known to a certain extent already, by virtue of data collected in other branches of scientific research. It is merely a question of surface, speed, and weight: the greater the weight to be carried, the greater the surface necessary to support it; and the greater the surface in proportion to the weight, the slower need the wings flap downwards in order to get the necessary "grip" on the air. Speed plays a more important part than surface in obtaining a lifting effect out of the air, as anyone may demonstrate for themselves by experimenting with a piece of cardboard as already mentioned. If the rate of flapping—which for the moment may be assumed to represent the speed—is doubled, the lift would be about four times as great, whereas, if it is the surface which is doubled, the lift would be only twice as great.

Although the lifting effect which is produced is so essentially associated with movement it is very important to properly grasp the principle upon which the air is really utilised as a means of enabling the machine to lift itself bodily in space. The air itself does not exert an upward thrust of an active character such as would be comparable with the lifting effect derived from muscular effort or mechanical appliances. The air is a purely passive agent, for at the most it merely operates as a member against which the wings abut whilst they exert a leverage to lift the body of the machine upwards. Normally the still air is unable to support anything heavier than itself, but it resists being set in motion quickly, and when this reaction is equal to the load, the air may for convenience be considered as approximating to the solid state.

When a Wing Lifts.

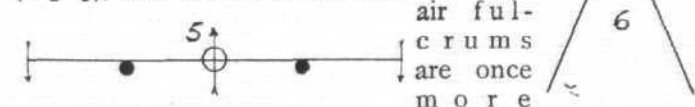
This purely imaginary solid state of the air is reached with any given machine of the flapping-wing type when that machine actually lifts itself from the ground by its own efforts, for from the moment that the body of the machine commences to move upwards the air is to all intents and purposes forming a solid fulcrum at some point immediately under the wings. Suppose, for example, that a flapping-wing machine of the valvular-wing type is resting on the ground, with its wings stretched more or less straight up into the air (Fig. 1). As they begin to flap,

a point is reached on the descending arc of their stroke when the reaction is equal to the weight, and the machine no longer presses upon the ground. The air has, in other words, become solid in respect to that particular machine, and may be represented diagrammatically (Fig. 2) as taking the place of the ground in supporting the machine.



As the downward beat of the wings continues, their effective area and their effective velocity both rapidly increase, and consequently the surplus force thus generated is available for levering the body of the machine upwards. At first the change which takes place may be likened to the air dividing itself into two solid fulcrums, which place themselves close up on either side of the body of the machine immediately beneath the wings (Fig. 3). The machine may now be regarded as a pair of hinged levers resting across a pair of parallel bars. At this moment the leverage of the wings is at a maximum—it is assumed for convenience that external pressure is being applied to the wing tips—but the capacity for upward movement in the body of the machine is obviously very small indeed. The surplus force generated by the increase in the effective area and downward velocity of the wings produces an effect, however, which may be likened to a rapid change in the position of the air fulcrums which move outward and slightly upward in contact with the wings (Fig. 4).

In such a position as that represented, the leverage is reduced, but their capacity for raising the body of the machine is much increased. At a certain point the reaction which the wings are able to obtain from the air reaches a maximum (Fig. 5), and thereafter decreases until the



brought back to their initial position beneath the body of the machine (Fig. 6).

The Idle Stroke.

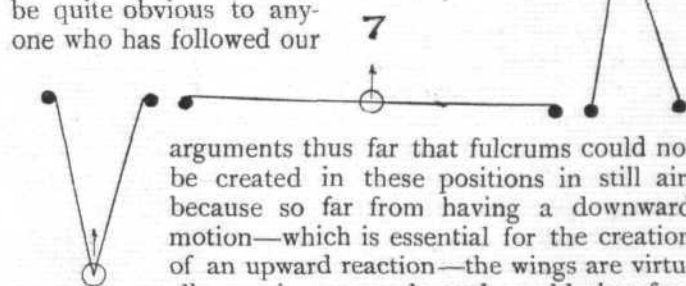
Hereafter they vanish, for the wings have ceased to be effective, and the machine, now left unsupported in space, commences to fall. In the first second of time which elapses, the machine will, neglecting air resistance, fall through about 16 ft. in altitude, for all bodies which are heavier than air have the same downward acceleration (32 ft. per sec. per sec.) due to gravity. Suppose, for example, that the down stroke of the wings was effective in raising the body of the machine through a height of 4 ft., then the time which would be occupied by the machine as a whole falling bodily to the ground would be approximately, say, $\frac{1}{4}$ th of a second. If, however, the wings can make their upstroke and return to their effective angle (Fig. 2) on the subsequent down stroke before that $\frac{1}{4}$ th of a second has elapsed, then they will have regained their grip upon the air before the machine touches the ground. The problem is not

perhaps quite as simple as this, for the machine having once commenced to fall, must first be brought to rest, and as its momentum is proportional to the square of its velocity as well as in direct ratio to its weight, this is by no means an easy task to accomplish, in spite of the fact that the act of falling through the air would increase the relative velocity of the wings, and thereby make them more effective.

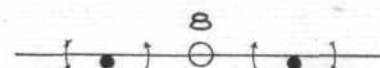
Although not perhaps strictly accurate in all its bearings, our mechanical analogy as a means of facilitating the fixing of ideas while dealing with such an intangible subject as air, is particularly useful in this instance as a means of bringing to light certain points which are otherwise apt to be overlooked. A very little consideration of the accompanying diagrams will show, for instance, that the vertical lifting effect of a pair of flat wings can only be a comparatively small fraction of their total stroke.

An Extreme Case.

To prove this it is only necessary to assume the opposite by taking the extreme case in which it is imagined that the fulcrums could be placed beneath the wing tips throughout their downward stroke (Fig. 7), so as to render their entire movement effective in raising the body. It must be quite obvious to any one who has followed our



arguments thus far that fulcrums could not be created in these positions in still air, because so far from having a downward motion—which is essential for the creation of an upward reaction—the wings are virtually moving upwards, and would therefore create a downward reaction from the air, assuming that the operation of the valves allowed any reaction on this side of the wing to take place at all. What happens in this extreme case must still take place in a less degree when the fulcrums are established at some intermediate point along the wings. Suppose, for instance, that the fulcrums are situated midway between each wing tip and the body when the wings are fully outstretched (Fig. 8). The



body of the machine is assumed to have been lifted into its present position by the wings, and therefore to be still travelling upwards. If such is the case, then that part of the wing surface between the body and the fulcrum is detrimental to the lift, so far as it can have any effect at all. If the valves in the wings are not automatic, but are opened mechanically only on the upward stroke, the areas of the inner and outer parts of the two wings will therefore exactly neutralise each other. In any case, it will be evident that the rise of the body can only be a fraction of the stroke, and in most cases only a small fraction.

We do not purpose to make any attempt at a proper mathematical analysis of this problem or the preceding one, because sufficient has been said already to show that the valvular wing orthopter is not quite such a simple problem even on paper, as some people seem to imagine. When it comes to the practical side of the question the difficulties of making an effective valvular wing machine capable of ascending straight up in the air appear to us to be of a still more difficult character.

Mechanical Considerations.

Machinery has a rooted objection to reciprocating motion as a rule, and we do not envy anyone who tries to make an engine work properly when its task is to flap up and down unwieldy great wings. If the flaps could be performed very slowly, the problem might not perhaps be so difficult, but even although a slow downstroke might be made effective by virtue of large wing area, a slow up-stroke is out of all question if the machine is going to drop bodily through the air with an acceleration due to gravity, which will

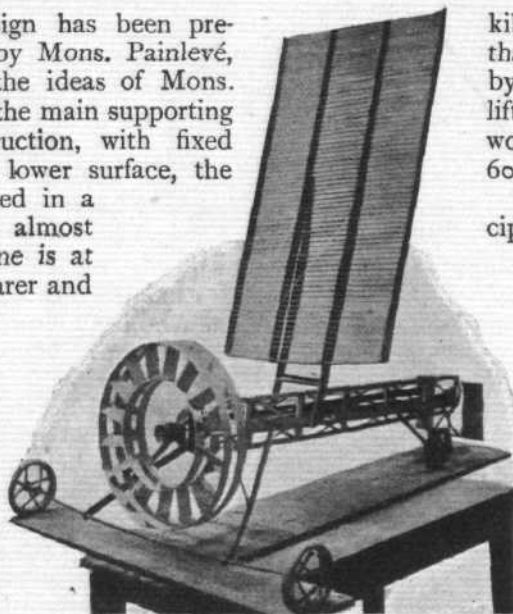
make it fall through an altitude of about 16 ft. during the first second. It might be possible to get over the difficulty by having two or more pair of wings on the machine, so that there is always a certain minimum direct lifting effect in action, but this would introduce still further complications which are outside the scope of the present article, the main object of which has been to point out that a simple flat surface does not even approximate to the action of a bird's wing, and that it would be a very difficult matter to make a machine, constructed with such flappers, climb straight up into the air.



A CURIOUS DESIGN FOR A FLYER.

A MODEL aeroplane of peculiar design has been presented to l'Academie des Sciences by Mons. Painlevé, this machine having been built to the ideas of Mons. Maurice Carron. As will be seen, the main supporting surface is of venetian-blind construction, with fixed aluminium lathes having a concave lower surface, the entire group of planes being carried in a frame which normally assumes an almost horizontal position when the machine is at rest, but which automatically rises nearer and nearer to the perpendicular the faster it is propelled through the air by the two oppositely-revolving propellers which are carried close up together on the main framework beneath. A lifting force of 12 kilogs. per sq. metre is claimed by the inventor, who also reckons that the resistance is no more than half that of most other types of machines.

With a machine weighing 200



M. Carron's model "lattice" flyer.

kilogs. (with its operator) he deems that a venetian blind, 4 metres by 2 metres, would have an effective lifting surface of 16 sq. metres, and would be self-supporting at a speed of 60 kiloms. per hour.

The general "venetian blind" principle adopted in this design was first used by the Englishman, Phillips, in 1862.

The chief feature of novelty in the Carron model is therefore the kite-like suspension of the load, the blind acting kite-fashion upon the framework with its freight and machinery beneath. It will of course be understood that the operator and the motors are intended to be situated upon the main girder which carries the tractor-screws in front and the rudders at the rear.



PHANTOM AIRSHIPS AND SCARE HEADLINES.

AN absurd degree of credence has been accorded by a certain section of the daily Press during the past week or two to what were evidently ridiculously exaggerated statements that emanated from various parts of the country concerning the appearance of mysterious airships by night. Clever though the ruse has been, it was evident from the very first that either a practical joke was being played or that a bold advertising scheme was on foot. The lengths to which speculation of the wildest kind were allowed to go was neither beneficial to the new industry nor calculated to enhance the dignity of the British public in the eyes of foreign nations. Apart from that, however, the game played with illuminated toy balloons of orthodox cigar-shape, towed by cars, in the still watches of the night, was well conceived from an up-to-date advertiser's standpoint, and was carried out

with conspicuous ingenuity and adroitness, while apparently a well-known firm of automobile engineers may be suspected of deep complicity in it. From Mr. C. D. Clayton we learn, at any rate, that:—

"The airship which has been causing considerable comment by its mysterious passages turns out to be Sizaire Mors airship of Messrs. Jarrott and Letts, Ltd., and which was found wrecked on Chalk Hill Down, Dunstable, in the early morning of May 25th, being discovered by L. White, who has been rewarded with the sum of £5."

And to this we need but add that the following notice is said to have been found attached to the expired monster by its lucky finder:—

"In the event of an accident.—This airship is the property of Jarrott and Letts, London, who will pay the sum of £5 to the finder, provided he first sends a telegram to "Jemidar," London, stating where the airship is to be found."



BACK NUMBERS

OF "FLIGHT."

THE publishers have pleasure in announcing that they have secured a few of the back issues of FLIGHT, and any of our new readers who may wish to complete their sets may obtain the first twenty-one numbers for 2s. 9d. post free, from the Publishers, 44, St. Martin's Lane, W.C.

NEWS OF THE WEEK.

Opening of the Juvisy Aerodrome.

THE opening of Port Aviation—the aerodrome at Juvisy—on Sunday last was somewhat in the nature of a fiasco. Great preparations had been made, and it had been extensively advertised that there would be an exciting aeroplane race between Delagrangé, Rougier, Bleriot, and others. A large crowd of spectators, estimated by some people as something up to 100,000—probably 10,000 is nearer the mark—assembled and patiently waited for some hours to see the flyers in the air. The kite-flying competition which was on the programme for the afternoon did not secure a great deal of interest, and as there was no signs of the aeroplanes being put through their paces, murmurs of discontent began to arise. At last M. Delagrangé made several short flights, but that did not satisfy the crowd. Eventually, about five o'clock, it looked as though some damage would be done, as the crowd began to encroach on the course and threatened to invade the pay-offices and smash the grand-stands, &c., up. With characteristic pluck, M. Delagrangé came to the rescue. Although he was hampered by the people swarming on the course, he started off and covered five circuits of the course. Rougier also made an attempt to fly, but he was so unnerved by the people crowding upon him that he was unable to complete one circuit. The judges therefore decided that M. Delagrangé was the winner of the Lagatinerie Prize, but as only two machines competed, the value of it, in accordance with

the rules, was reduced to 2,500 francs. The official record of M. Delagrangé's flight states that he covered five circuits, a distance of 5·8 kiloms., in 10 mins. 18 $\frac{3}{5}$ secs.

The next event at Port Aviation is to be held to-morrow (Sunday), and will take the form of a high jump contest, a line of balloons being fixed at a height of 25 metres, and the competitors having to "jump" over them.

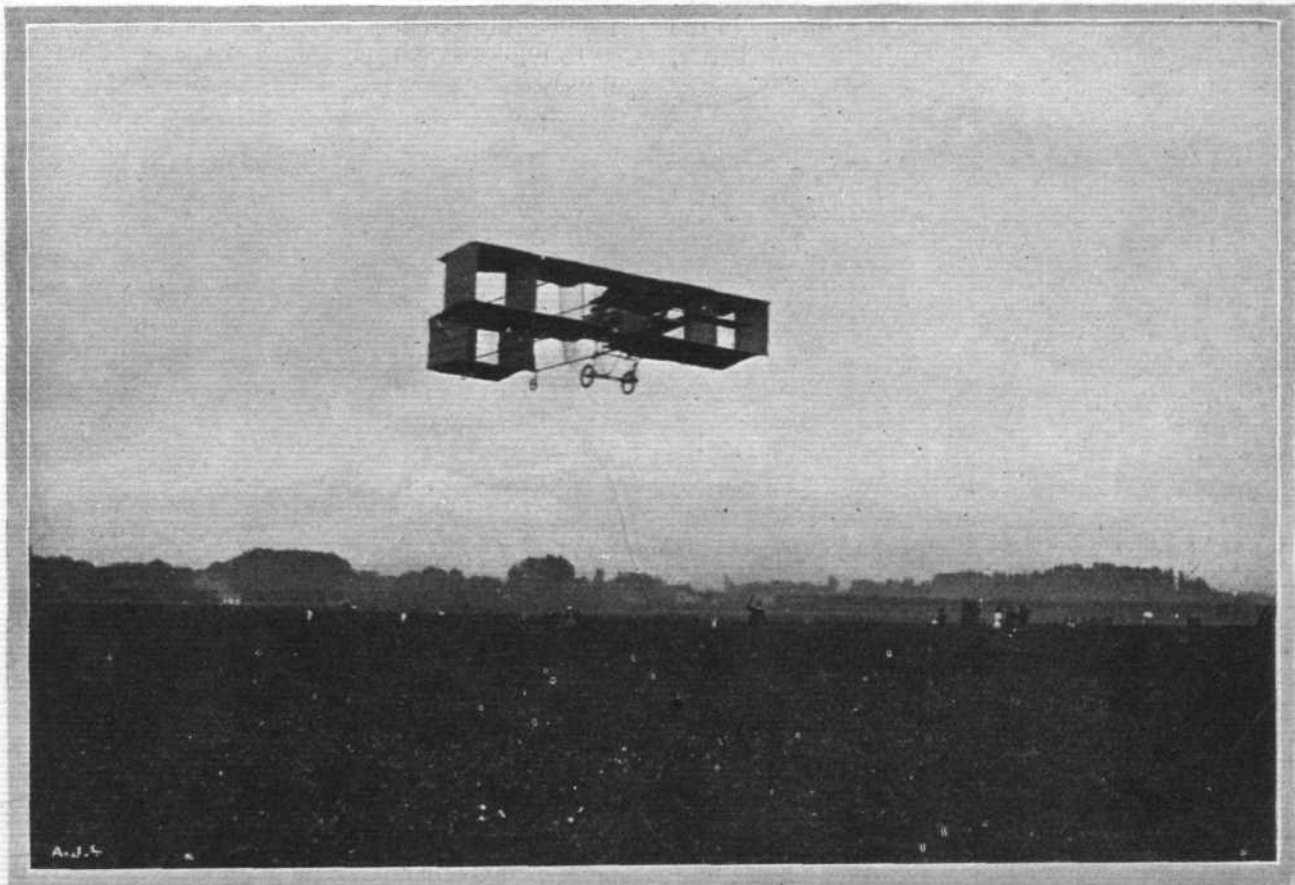
Hubert Latham makes a Monoplane Record.

MR. HUBERT LATHAM, who has been assiduously practising on "Antionette IV" at Chalons Camp for some time, has now leapt into the front rank of aviators by his splendid performance on Saturday last, when he flew for 37 mins. 37 secs. at a speed of 72 kiloms. an hour. Mr. Latham seemed to have his machine under perfect control, and made the turnings quite easily. The flight, which of course makes a new world's record for monoplanes, was carried out at a height of about 40 metres.

On the Wednesday previous, Mr. Latham made a short flight sufficient to win one of the 500 metre prizes for pupils, and later on in the same evening he made a similar flight carrying M. Demanest as a passenger. He also took up two passengers on Thursday, giving M. Primard and M. Labouchere flights of 600 metres each, while on the following day he made a flight of 12 mins. 50 secs.

M. Tissandier Breaks Record.

M. TISSANDIER is likewise numbered amongst makers of new French records, on Thursday of last week



MARKING A NEW EPOCH IN THE PROGRESS OF FLIGHT.—M. Delagrangé flying on his Voisin machine round the Juvisy Aerodrome last Sunday upon the occasion of its inauguration. This is the first public aerodrome in the world.

having, at Pau, remained in continuous flight 1h. 2m. 13s. on his Wright flyer, covering in that time 57.5 kiloms. The previous best record for France was that made by Delagrangé, who, on August 6th last year, flew for 29m. 54s. The new record ranks third as a world's record, the first being Wilbur Wright's performance of December 31st last—2h. 20m. 23s., and the second, Orville Wright's flight of 1h. 15m. 20s. made on September 12th last.

On Friday, 21st, M. Tissandier gave a lesson of 8 mins. duration to M. Gasnier, and one of 4½ mins. to M. Leblanc. He was visited at Pau by members of the Congrès des Syndicats d'Initiative, and he essayed to give a demonstration flight, but for some unaccountable cause his motor refused to start, and so perforce the visitors had to depart somewhat disappointed.

Rougier Flies 30 Kiloms.

ROUGIER, the Lorraine-Dietrich racing driver, seems to be making marvellous progress in the new art. Last week he, as well as Delagrangé, made several flights round the Juvisy aerodrome, but his best performance was on Saturday morning last, when he flew eleven times round the ground, covering a distance of about 30 kiloms. at a height of 20 metres. He seemed to be quite as much at ease on his Voisin biplane as he used to be on his racing car.

M. Guffroy Flies over 8 Kiloms.

M. GUFFROY, who is experimenting at Buc with an R.E.P. monoplane, has been making several successful flights, and on Saturday last, after flying several times over a distance of about 800 metres, he traversed a distance of 3.8 kiloms., including a turning. He had entered for one of the 500 metre prizes for pupils, but for some unexplained reason the officials of the Ae.C.F. failed to put in an appearance until it was too late in the evening. The next day M. Guffroy did still better, flying for 8 kiloms.

M. Bleriot on his New Monoplane.

M. BLERIOT has now completed his new monoplane No. 12, which, although slightly larger than his No. 11, is very similar to it. It is fitted with a 35-h.p. E.N.V. motor. M. Bleriot had the machine out at Issy on the 21st inst., but unfortunately he was unable to attempt a flight with it, as it was found that the left wing was slightly heavier than the right one, and so threw the machine out of balance. This defect will, however, be very quickly set right.

M. Demanest at Chalons.

M. DEMANEST has also been very successful with his Antionette, and on Friday week, after Mr. Latham had finished his flight of over 12 mins., M. Demanest went up, and by way of going one better, flew for 13 mins. 23 secs.

Government Flight Experiments on Salisbury Plain.

THE preparations which are being made by representatives of the Army and Navy for carrying out aeronautic experiments on Salisbury Plain, and the construction of the necessary sheds, is proceeding apace. The two sets of buildings, of which that for the Navy is the larger, are being built not far from Knighton Down and Stonehenge.

Successful Firing at Balloons.

ON Tuesday week, some artillery experiments were carried out on Salisbury Plain, a captive balloon being sent up to a height of about 2,000 feet, and a section of the heavy gun battery being told off to bring it down. Placed at a distance of 2,500 yards away, the first shot went above

the balloon, but it enabled the gunners to correct their aim, and the next shell burst just over the balloon. The gas-bag being pierced, the balloon began to descend, and a further couple of shrapnel shells soon completed the work.

British Army Dirigible.

ON the 21st inst. the Army dirigible, "Baby," was given a series of tests on Farnborough Common, under the direction of Col. Capper and Captain King. On Monday last it was out again, and after manœuvring for about an hour at a height of 1,000 ft. it rose to 2,000 ft. Then an immediate descent was decided upon, and the gas-valve was opened. Too much was allowed to escape, however, and the airship came down rather suddenly, fortunately landing on the Branshot Golf Links and just missing the Pyestock Woods. As the airship was unable to rise again, a fresh supply of gas was sent for, but by the time this arrived a strong wind was blowing, and it was therefore decided to tow the machine back to its shed.

First Dirigible "Race."

THE first race between dirigibles was carried out on Saturday last, when the two newest airships of the German Army, "Gross II" and "Parseval II," were engaged in a friendly contest against each other by way of testing their powers. The two airships were sent up soon after 5 o'clock and took up their position over the rifle butts at Tegel. A gun was fired as the signal for the start, and "Gross II" got away smartly, but the pilot on the "Parseval" did not hear the signal and so had a bad start. The turning point was a stack of chimneys on the Templehof parade ground, a distance of 6 miles from the start. The passage of both airships over the German capital was watched with great interest by thousands of people in the streets. Both made exactly the same time—15 minutes each way—and so the result was declared a dead-heat.



The Bleriot Monument erected at Toury, in France, in celebration of M. Bleriot's historical flight across country from town to town—Toury to Arthenay and back—on October 31st, 1908. To-morrow (Sunday) the formal inauguration of this monument will take place.

Very shortly experiments are to be made with wireless telegraphy between the "Gross" airship while in flight and the wireless station at Nauen and also to the cavalry parade ground at Doeberitz.

Kaiser Reviews "Gross II" and "Parseval II."

ON Tuesday the two German airships "Gross II" and "Parseval II" were put through a series of tests in order that the Kaiser might see the capabilities of the craft. The Kaiser was reviewing cavalry on the Doeberitz parade ground, and it was decided to send both vessels there with despatches from their station at Tegel, about ten miles away. The "Gross II" was sent off first, and arriving at the parade ground, carried out various evolutions and then landed in a field just by. After being replenished with gas, she sailed back to Tegel, and just as she was disappearing from sight the "Parseval II" came into view, and went through a similar performance. The Kaiser frequently applauded the way in which the vessels were manipulated.

Dirigible Race in America.

It is announced from New York that the Aero Club of America have received half-a-dozen entries for the Grand Prize Race for dirigibles which is being organised to take place at Indianapolis on June 8th.

"Zeppelin II" off the Stocks.

ON Tuesday "Zeppelin II" was filled with gas in preparation for her initial voyage. The next day the working of the steering arrangements, &c., was tested by a series of manœuvres carried out over Manzell.

A New Lagatinerie Prize.

A SECOND prize has been offered to the Société d'Encouragement à l'Aviation by the Baron Lagatinerie, and the contest for it will be held at Juvisy shortly. The conditions are now being drawn up, but the main point will be that aviators will have to make two turns of the course without touching ground, and pass over a line of ballonettes placed at a height of 15 metres.

A Glider at Bagatelle.

SOME experiments have recently been carried out at Bagatelle by M.M. Labanhie and Puthet with a glider of the biplane type, having a spread of 6 metres. The apparatus, which, with M. Puthet on board, weighs 100 kilogs., has been hauled along the Bois des Boulogne at speeds varying from 20 to 40 kiloms. an hour, and glides of from 300 to 400 metres have been made.

School of Flight.

FOLLOWING on the proposal made to the Army Council by the Aerial League that a school should be established where approved pupils could be taught the theory and practice of aeronautics, the Army Council are calling a conference between representatives of the Army and Navy and the Aerial League to discuss the matter.

An Aviation College in Munich.

FOR the purpose of furthering the study of aeroplanes and aviation generally, an academy has just been founded in Munich. Among other things the academy propose to construct an artificial hill, by the aid of which it will be possible for its members to carry out gliding experiments on the lines proposed by Lilienthal. Count Boos-Waldeck has been elected President, and the other

members of the Committee are Herr von Bleichroder, Herr Waitzfelder, Dr. Shad, Dr. Bruckmeyer, and Herr Baumgartner.

Sparking Plugs for Aeroplanes.

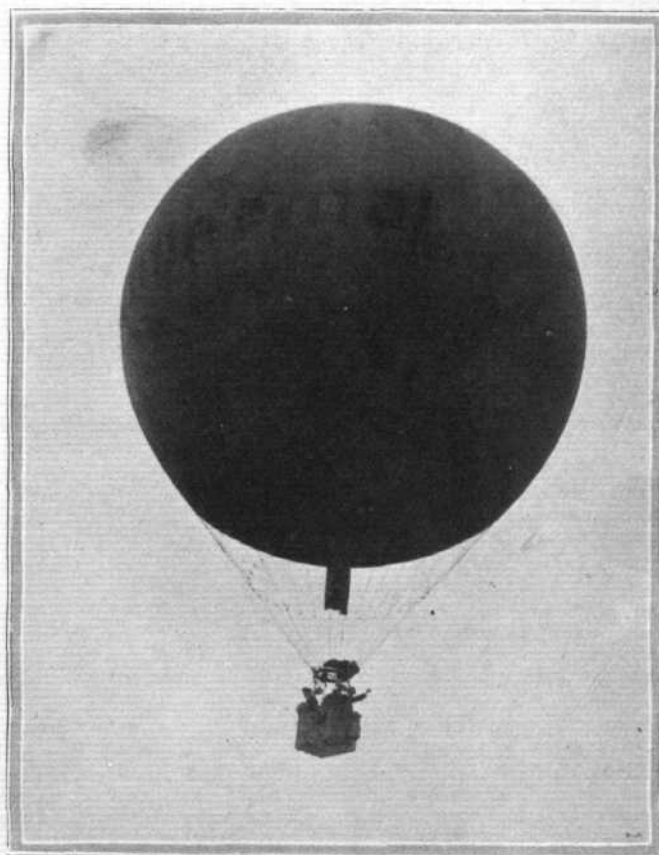
A NEW ignition-plug which has been specially designed for use on aerial motors has just been put on the market by the Electric Ignition Co. It is designated the aero plug, is fitted with Steatite insulation, and although it has the De Dion thread, only weighs 1½ ozs.

An Aeroplane Company.

WHAT was probably the first of its kind appeared in the public Press in the early part of this week in the shape of a prospectus inviting public subscriptions to a limited liability company formed to construct and develop an aeroplane. The machine in question is the invention of Capt. Joseph Donovan, of West Hartlepool, who has met with a good deal of success in his experiments with models.

"Continental No. 1."

AT the Aero Exhibition at Olympia a very prominent feature of the Show, it will be remembered, was the balloon "Continental No. 1." We are now able to reproduce a photograph of this fine spherical balloon upon its maiden trip, which took place on the 15th inst., starting from the Hurlingham Club. The Hon. C. S. Rolls acted as pilot for the occasion, and Mr. Paul Brodman and Mr. Charles Jarrott accompanied Mr. Rolls as passengers. At a quarter to four the order to "let go" was given, the wind blowing freshly from the east, and a capital journey was made *via* Richmond, Windsor and Reading, the descent being successfully accomplished on Beeton Common, near Newbury, Berks. The highest altitude attained was a little over 5,000 ft.



"Continental No. 1," piloted by the Hon. C. S. Rolls, on its maiden trip from Hurlingham Club.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

MAJOR SQUIER'S PAPER.

To the Editor of FLIGHT.

SIR,—I have read the article "Present Status of Military Aeronautics," by Major Squier, and must beg to differ with his figures respecting the computed power required to tow a plane 1 ft. square, weighing 1 lb., horizontally through the air. My contention is that investigators are apt to be misled by the calculations set forth.

To show the fallacy of his results, I append the computed powers and velocities for an albatross, using his figures as a basis, whereby it will be seen how absurdly abnormal the power and speed works out to be for the above-mentioned bird.

The Danish engineer, Mr. Vogt, gives the following particulars of the weight, supporting surfaces, and speed of an albatross.

Weight = 23 lbs.; surface = 7 sq. ft.; velocity = 66 ft. per sec. From the table, we get by calculating for 3.3 lbs. per sq. ft., instead of 1 lb., keeping the angle the same, and multiplying by the number of sq. ft. of supporting surface, the following results:—

ft. per sec.	Velocity. m.p.h.	Angle of flight.	Drift.	Friction.	Total.	Total h.p.
81	54.6	8.25	3.2	0.385	3.585	0.565
95	63.8	5.94	2.4	0.52	2.92	0.545
110	73	4.52	1.8	0.67	2.47	0.495
122	82	3.55	1.42	0.84	2.26	0.487
136	91	2.88	1.15	1.01	2.16	0.534
163	109	2.03	0.81	1.3	2.11	0.63
190	127	1.47	0.59	1.64	2.23	0.77
215	145	1.12	0.45	2.40	2.85	1.12
245	163	0.88	0.355	2.98	3.335	1.5
273	182	0.71	0.285	4.85	5.135	2.25

According to this table, the speed and horse-power is excessively high, namely, the albatross should be capable of developing at least 487-h.p. even to make flight possible, and this by a speed of 82 m.p.h., which is, as already mentioned, far beyond the capacity of this bird. The difference could only be accounted for by altering the constant k in his formula by several hundred per cent., instead of, as he mentions, 25 per cent. for arched surfaces; therefore, it seems useless to me to introduce a constant which varies with speed, angle of flight and aspect of the surface.

In the data for the Wright machine, Major Squier seems to have interchanged the flying angle with the gliding angle. The flying angle with the Wright machine should be approximately 1° or 2° , instead of 7° . Seven degrees is the gliding angle, which takes into account the frame resistance. This latter, Major Squier proposes to neglect, which is hardly feasible, seeing that in the case of the Wright machine the work required to overcome the resistance of the frame amounts to much more horse-power than is used for dynamic flight and skin-friction.

Newcastle-on-Tyne. Faithfully yours,
PAGE GEORGE NYBORG.

MODEL AEROPLANES.

To the Editor of FLIGHT.

SIR,—I think it would be of interest to your readers who did not visit the recent Aero Exhibition at Olympia, or if they did, did not happen to observe the model aeroplanes made by Mr. H. B. Webb, of 47D, Handsworth Road, Philip Lane, S. Tottenham.

They are half-moon shaped monoplanes, and made in various sizes, ranging from 1s. upwards. They give surprising results, and all fly further for their size than anything I have hitherto seen. I have in my possession one of the Webb 2s. 6d. models, and am so very pleased with its performance that I should like your readers, who must all be interested in such matters, to know about them. The smallest model, i.e., the No. 1 size, is guaranteed to fly 20 to 25 yards. The No. 3 (the model that I have) is supposed to fly 60 yards. As a matter of fact, I find they all fly much further than guaranteed. The one I have actually flew 98 yards, measured in a straight line from the point at which it started to the spot where it finally came to rest. As, however, the course taken by the machine was not in a straight line for the whole of its flight, it must have travelled about 130 yards altogether.

To me the operation of flying this machine is most interesting. If it were flown in a large building or hall, I expect the flights would all have a similarity about them, but out of doors, where every little current of air affects the machine more or less, no two flights are exactly alike. For instance, I was flying mine in a small park the other evening and, in one flight in particular, owing to conflicting currents of air due to trees, adjacent streets, &c., the machine on leaving my hand flew in a straight line for about 40 ft., turned sharp to the right, and then at about that radius circled round me about

twice. The next time on being started from precisely the same spot, it maintained an almost straight line throughout the whole of its flight.

In the daytime it will mount 10 or 12 ft. in the air, and fly at that level, but in the evening it prefers to fly about 4 ft. from the ground.

In conclusion, I should like to add that Mr. Webb claims that he has solved the problem of aerial balance, and the machine certainly substantiates this.

I have never seen the machine fall or upset by the wind, but I have in a very strong wind seen it turn a complete back somersault like a tumbler pigeon and then continue its flight. I think Mr. Webb has a good thing, and am very pleased to learn that he was awarded a medal at the Exhibition, and heartily wish him every success. I have models of my own construction that fly, but nothing to come anywhere near his.

Yours truly,

J. MURRAY WRIGHT.

MODELS.

To the Editor of FLIGHT.

SIR,—I must thank you for a previous answer to an enquiry of mine.

Could you tell me on how large a scale model elastic has been used as the motive power? Can it be efficiently used on a large model? Also, could you tell me what is the best elastic to get in such a case, and where is the best place to get it at?

Yours faithfully,

(Rev.) A. E. WATSON.

Plumstead.

[It is impossible to say definitely what is the largest model on which elastic has been used for propulsion, but some of those used by Mr. Lanchester were of considerable size. One in particular had a pair of elastic motors 8 feet long, each containing 6 strands, the weight of each "motor" being nearly $\frac{1}{2}$ lb. The whole weight of the model was $2\frac{1}{2}$ lbs. The range of flight theoretically available from the elastic was about 250 yards, to which there would be added, say, another 50 yards covered during descent. The model in question was a high-speed design, necessitating a suitable launching appliance.—ED.]



NEW COMPANIES REGISTERED.

Donovan Aeroplane Co., Ltd., 11, Church Street, West Hartlepool.—Capital £2,000, in £1 shares. Formed to acquire and construct flying machines and similar apparatus, and particularly to acquire absolutely the Patent No. 21,618 for improvements in the mode of and apparatus for flying machines, which is the invention and sole property of Capt. Joseph Donovan, of West Hartlepool. First directors, Richard James Blacklin, Thomas McCleod, and Joseph Donovan.

Dunlop Aeroplanes, Ltd.—Capital £100, in £1 shares. Formed to carry on the business of manufacturers of and dealers in aeroplanes, flying machines, balloons (whether dirigible or otherwise), &c.



Aeronautical Patents Published.

Applied for in 1908.

Published May 20th, 1909.

24,148. P. F. DEGN. Flying machines.

28,027. R. ESNAULT-PELTERIE. Aeroplanes.

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